USSR

UDC 699.841(0.83.74).001.24

IVANISHCHEV, V.F., Engineer

"Some Special Features of the Calculation of Hydraulic-Engineering Structures for Seismic Influences, and the Selection of Norming Parameters for the Characterization of Seismic Loads"

Abstract: In the draft of the new edition of Chapter 12 of Construction Norms and Regulations II-A "Construction in Seismic Regions," in the section "Hydraulic Engineering Structures," it is proposed, in place of the heretofore used static theory of seismic resistance, to adopt the linear spectral theory of seismic resistance, for industrial structures, as well as for civilian ones. The article deals with change in the calculation of such structures for seismic resistance that are required with adoption of the proposed new version. 1 table, 9 bibliographic entries.

1/1

USSR                                            UDC 681.3

IVANITSKAYA, L. G.,

"The Problem of Construction of Reliable Determinants for a Commutation Unit"

Sb. Tr. Nauchno-tekhn. Konferentsii Prof. - Prepodavat. Sostava Vses. Zaochn. Elekrotekhn. In-ta. Svyazi. Vyp. 5 [Collected Works of Scientific and Technical Conference of Instructors of All-Union Correspondence Electrical Engineering and Communications Institute, No. 5], Moscow, 1970, pp 62-68 (Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract No. 4 V624 by V. Mikheyev).

Translation:  Two methods are studied of increasing reliability in synthesis of the control device of an automatic commutation unit:  the use of majority and quadrupled logic and a comparative evaluation of the volume of equipment is presented on the example of the control device for a three-link commutation circuit. The specifics of the logics used and the corresponding logic functions of formation of the connecting unit are noted.

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Acc. Nr: AP0034396

# DRUG RESISTANCE IN MYCOBACTERIUM TUBERCULOSIS AND EFFICACY OF TREATMENT WITH SENSITIVE PREPARATIONS
## (Experimental Studies)

*V. P. Belogurova, N. N. Ivanitskaya*

I. M. Sechenov Institute for Physical Treatment Methods and Medical Climatology, Yalta

191 guinea pigs were used in the experiments. 5 strains of Mycobacterium tuberculosis resistant to tubazid (5—25 µg/ml) or streptomycin (100 µg/ml) were studied. Resistant cultures of Mycobacterium tuberculosis isolated from the patients phlegm were previously plated out on egg media containing the drug for clearance from sensitive strains. Two weaks after the inoculation (0.01 mg of the culture administered subcutaneously) one group of the guinea pigs was treated with phthivazid administered orally in a dose of 13—15 mg/kg and the other group was treated with streptomycin administered intramuscularly in a dose of 13000—15000 Units/kg. The survived animals were sacrificed

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3—3.5 months after the inoculation. In the 2nd series of the experiments the guinea pigs were inoculated with a mixture resistant to tubazid in a dose 5 µg/ml of culture 801-T containing sensitive cultures of laboratory strains Dt/st and HarRv of Mycobacterium tuberculosis. The experiments revealed no positive results in a number of animals treated with the drug, to which the cultures of Mycobacterium tuberculosis were sensitive in vitro. In some animals only isufficient effect of the so called reflected effect of drug resistance was observed. The presence of resistant and more virulent sensitive cultures of Mycobacterium tuberculosis in the animals made the treatment successful owing to the effect of the drugs on sensitive microbes.

D. n.

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USSR

IVANITSKIY, A., Professor, Doctor of Medical Sciences, and SHUBINA,
N., Candidate of Medical Sciences

"Physiological Two-Dimensionality of Information: Mechanisms and
Consequences"

Moscow, Nauka i Zhizn', No 1, 1970, pp 97-103

Abstract:  A study was made of the two ways that the brain evaluates
information received by the senses, i. e., the objective analysis
of stimuli.    Every stimulus acting on the senses can be evaluated
from two points of view:  by its physical parameters and by its
significance to the organism.  The brain is capable of synthesizing
these two qualitatively different types of information, which per-
mits the evaluation of a separate stimulus, specimen or situation
from the point of view of its objective (independent of the in-
dividual) signs and from the point of view of its subjective charac-
teristics, i. e., its significance for a given person.  Both of
these components are necessary for the activity of the higher
brain centers in organizing adaptational behavior.  At the same
time, the specific weight of each of the types of information can
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USSR

IVANITSKIY, A., et al., Moscow, Nauka i Zhizn', No 1, 1970, pp 97-103

change, depending on the situation, the problems confronting the
individual and the congenital personality traits.  Change of the
"qualitative composition" of the information involves a whole series
of perception, thought and behavior changes.  Perfection of cerebral
organization is manifested in the possibility of regulating the in-
flow of one or the other type of information, and switching per-
ception from one type to the other.

　　　Attention was drawn to the fact that the well-known competi-
tion between the two types of information leads to the unique
"perception paradox": the more we know about the objective character-
istics of the stimulus, the less precise are its subjective character-
istics.

2/2

# IVANITSKIY, A. M.

Hygienic investigation and control of the use of enzyme preparations of bacterial origin for use as additives to foods is a complex problem with medical as well as economic significance. The advances in modern enzymology and microbiology, their practical use in the food industry, are related to elaboration of technological procedures for producing enzyme preparations varying in degree of purification. At the present time it is generally conceded that it is the most purposeful to recommend preparations obtained from mold fungi and bacteria for use as hydrolytic enzymes and complexes thereof in the food industry.

In the Directives of the 24th Congress of the CPSU pertaining to the five-year plan of development of the national economy, attention is given to future growth of production of enzyme preparations, and to the need to broaden the assortment thereof considerably. The production of enzyme preparations obtained from fungi and bacteria is one of the main branches of modern microbiological industry. Hygienic investigation and prevention of enzyme preparations is an important area of hygiene of nutrition and prevention of alimentary disease. The results of investigating the possibility of making practical use of enzyme preparations from the standpoint of preventing medicine permit development of the appropriate recommendations to public health agencies with regard to the desirability of allowing (or banning) their use in the food industry.

With regard to the economic effect of broader use of enzymes, we could cite here the pronouncement of A.S. Tsyperovich, that this effect could amount to billions of rubles in our country. It must be noted that even more attention has been paid to this problem in recent times. In 1970, the comprehensive monograph by V.L. Yarovenko et al. was published, Prolzvodstvo fermentnykh preparatov (Production of Enzyme Preparations out of Fungi and bacteria), and it summarized the problems related to development and present status of this problem. The Main Administration for the Microbiological Industry under the USSR Council of Ministers has published special surveys

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USSR                              UDC:  621.372.5

IVANITSKIY, A. M., ZELINSKIY, M. M.

"Classification of Tripolar Ideal Converters"

Translation:  Ideal tripolar impedance inverters and converters are defined.
Three classes of ideal tripolar impedance converters are defined.  Conditions
of existence are formulated for these ideal converters, and their properties
are considered.  Resumé.

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USSR                                    UDC: 621.372.5/.6

IVANITSIY, A. M.

"Matrix Method of Synthesizing Resistance Converters"

V sb. Vopr. elektrosvyazi (Problems of Electrical Communications--collection of works), Kiev, "Tekhnika", 1970, pp 157-162 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11A119)

Translation:  The author presents a general method of synthesizing arbitrary 2×2-terminal network resistance converters.  The method is based on representing the converter by a matrix which takes account of its deviation from ideality (disruption of stability, or sensitivity of the characteristics to a change in circuit parameters).  Application of the method is exemplified by calculating an ideal transformer.  Two illustrations, bibliography of seven titles.  N. S.

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- 27 -

USSR                                     UDC 612.821.6+612.822.3

IVANITSKIY, A. M., Central Scientific Research Institute of Legal Psychiatry
imeni Professor Serbskiy, Moscow

"Cortical Synthesis and Two Information Systems in the Brain"

Abstract: A concept is developed according to which a conditioned reflex
results from a synthesis of information on the physical parameters of the
stimulus with information on its symbolic biological meaning learned through
special experience. Analysis of the physical properties is performed by
sensory systems, while evaluation of the biological significance involves par-
ticipation of higher subcortical centers. Objective investigation of these
two components entering cortical synthesis can be carried out by the evoked
potential method. Thus, investigations of evoked potentials in man revealed
that the relationship between the two categories of information is dissimilar
in different variants of adaptive behavior. This relationship can be altered
through active control of the transmission of impulses along ascending projec-
tion systems. Apparently, this mechanism plays an important role in individual
differences in the reaction to identical stimuli. Block of impulse conduction
1/2

USSR

IVANITSKIY, A. M., Zhurnal Vysshey Nervnoy Deyatel'nosti imeni I. P. Pavlov,
Vol 23, No 2, Mar/Apr 73, pp 375-383

along one of the two projection systems constitutes one stage in the patho-
genesis of mental disorders.

2/2

USSR

UDC: 537.312.62

KAPLUN, Z. F., IVANITSKIY, K. P., DEDIK, Yu. V.

"A Unit for Coupling a Superconducting Resonator to External Waveguide Channels"

USSR Author's Certificate No 265595, filed 16 Feb 68, published 19 Jun 70 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D642 P)

Translation: This Author's Certificate introduces a unit for coupling a superconducting resonator to external waveguide channels. The patent is based on Author's Certificate No 229625. As a distinguishing feature, the transient attenuation between the input and output waveguides is increased by making a section of the inner jacket of the cryostate located close to the gaps in the above-mentioned waveguides in the form of a truncated cone with angle of inclination of the generatrix of the order of 60° relative to the axes of the waveguides.

1/1

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USSR                                                    UDC: 539.4

DUDUKALENKO, V. V., IVANISHCHEVA, O. I., and LEGENYA, B. I.

"Effect of the Structure of Composition Material on its Elastic
Characteristics"

Moscow, Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, No 2,
1973, pp 153-159

Abstract: The composition material considered in this paper is a
microscopically heterogeneous elastic body with a given elastic
modulus tensor.  The bulk and shear moduli figuring in this tensor
expression are assumed uniform and isotropic ergodic functions of
the space coordinates, and the stress-deformation state of the ma-
terial is described by Hooke's law, which connects the stress and
deformation factors through the equations of equilibrium and the
Cauchy relationships.  The problem of this theoretical paper is to
determine the limits of the elastic macroscopic characteristics of
the material.  To determine the limits of the shear modulus, the
authors consider the uniform state of a pure shear of the material
in which the phase regions are right circular continuous cylinders
with parallel generatrices and arbitrary transverse cross sections.
Here, it is assumed that the material is macroscopically uniform
1/2

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UDC: 539.4

DUDUKALENKO, V. V., et al, Zhurnal prikladnoy mekhaniki i tekhni-
cheskoy fiziki, No 2, 1973, pp 153-159

and transversally isotropic. The authors conclude that the asser-
tion that not only the concentration and moduli of the components
of the material but its internal geometry as well are valuable in
determining its shear modulus, is confirmed.

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USSR

IVANIY, G. M.

"X-Ray- and Thermoluminescence of Barium Titanate"

Translation: A study was made of luminescences appearing during X-irradiation
and subsequent heating in the case of pure $BaTiO_3$ single- and polycrystals.
It was found that thermoluminescence curves consist of a single peak at a
temperature of 110-114°C, which indicates the existence of just one sort of
trap in $BaTiO_3$. A rise in X-ray-luminescence brightness in the visible region
of the spectrum at room temperature takes place in two stages: one -- fast,
culminating in 1 sec; the other, slow. No slow stage is observed in the UV
region. Therefore $BaTiO_3$ has luminescence centers of two types. It is assumed
that in the one type, luminescence takes place during recombination of elec-
trons with holes localized on crystal defects; in the second type, the radia-
tion observed in the UV region is due to band-to-band transitions.

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UDC:  8.74

USSR

IVANKIN, V. I.

"Automatic Indexing of Some Types of Digital Information"

Translation:  On the basis of an analysis of 8500 sentences
from texts on motor vehicle construction a principle is de-
veloped for an algorithm of automatic indexing of digital in-
formation, which is as follows.  By comparing words of a
sentence in the text to be indexed with lists of parameters
to be represented in the retrieval form of the document and
the units of measurement of these parameters, the presence/
/absence of the parameter in the sentence is established.
The first significant digit on the left in the digital part
M of the parameter is converted to a single figure $i_n = 1$, 2,
..., 9.  The bit configuration of $i_k$ is then computer:  for

1/2

USSR

IVANKIN, V. I., Nauch.-tekhn. inform. Sb. Vses. in-t nauch.
i tekhn. inform., 1972, ser. 2, No 10, pp 8-11, 47

$M \geqslant 1$ it is the number of digits from the first significant
figure on the left to a space or decimal point on the right;
for $M < 1$ it is the number of zeros from the first significant
figure including the zero of integers, taken with a negative
sign. Thus any number in the retrieval form of the document
is represented as a concatenation of the two numbers $i_n, i_k$.
The algorithm can also be used for preparing reference data
for various articles, charts of technical level of articles,
and other texts of tabular type.

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USSR                                                                UDC:   51

VOLKONSKIY, V. A., IVANKOV, S. A.

"Theorems on Convergence of Iterative Processes"

Translation:  A paper by these authors (RZhMat, 1970, 12V441)
showed that an extensive class of iterative procedures used
in solving such mathematical problems as finding points of
equilibrium in games, finding the minimum of a function,
problems of linear and convex programming, finding the root
of a regression equation, are equivalent to one another in
the mathematical sense.  They may be treated as a description
in different languages of the same class of iterative pro-
cesses so that convergence theorems proved, say, for the
process of finding points of equilibrium in games, when
"translated" into the language of regression equations give

1/2

USSR

VOLKONSKIY, V. A., IVANKOV, S. A., Mat. metody resheniya ekon. zadach, No 3, "Nauka", 1972, pp 37-51

theorems on convergence of the method of gradient descent, etc. This paper is devoted to extending the conditions of convergence of this class of processes and its applications.

USSR                                    UDC:$537.226+537.311.33]:539.16.04$

IVANKINA, M. S., YANTSEN, I. V.

"Influence of Gamma-Quantum Bombardment on Temperature Coefficient of
Linear Expansion of Solid Solutions in the System KCl-KBr"

Izv. Tomsk. Politekhn. In-t [News of Tomsk Polytechnical Institute],
Vol. 184, pp. 40-51, 1970 (Translated from Referativnyy Zhurnal Fizika,
No. 11, 1970, Abstract No. 11 Ye 1093 by Yu. Nikolayev)

Abstract: The influence of isodose bombardment of gamma-quanta on the
temperature coefficient of linear expansion ($\alpha$) of solid solutions in
the KCl-KBr system is studied as a function of composition of the solu-
tion, and the influence of a bombardment dose on $\alpha$ of solid solutions of
various compositions is also investigated. Measurements were performed
using a capacitive dilatometer by the Beat method with an accuracy of
$\pm 10^{-7}$ deg$^{-1}$. It is demonstrated that after bombardment $\alpha$ of solid
solutions increases less than $\alpha$ of pure crystals. As the bombardment dose
increases, the concentration of radiation-induced defects increases more

1/2

UDC:537.226+537.311.33]:539.16.04

USSR

IVANKINA, M. S., YANTSEN, I. V., Izv. Tomsk. Politekhn. In-t [News of Tomsk Polytechnical Institute], Vol. 184, pp. 40-51, 1970, (Translated from Referativnyy Zhurnal Fizika, No. 11, 1970, Abstract No. 11 Ye 1093 by Yu. Nikolayev)

rapidly for the less defective pure crystals than for solid solutions bombarded with equal doses. These effects are explained by the weaker bonding forces between the ions in the solid solution lattice than between the initial components.

2/2

USSR

UDC 621.315.592

IVANKIV, L. I., L'vov State University imeni Ivan Franko

"Dependence of Catalytic Activity on Forbidden Gap Width of a Semiconductor"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 44, No 11, Nov 70, pp 2920-2921

Abstract: An experimental study was made of the effect of the forbidden gap width on the catalytic activity of semiconductors in the reaction of ethyl alcohol dehydrogenation. The catalysts were zinc chalcogenides with a crystal lattice of the sphalerite type. It was found that catalytic activity declines with an increase in the width of the forbidden gap. The results are explained on the basis of the electron theory of chemisorption and catalysis.

1/1

USSR

IVANKOV, I. YE.

"Static Strength of D16T Material Under a Plane Stress State"

Translation: The effect of the second major stress on the static strength of D16T material under a plane stress state is investigated. The experiments were conducted on samples in the shape of a cylindrical shell under the action of an internal pressure and a longitudinal force. Conditions are given where a drop in the static strength occurs under the action of internal pressure and a longitudinal compressive force and this drop is caused by the second major stress and also given are conditions for loss in stability if the longitudinal force is compressive. It is noted that the forms of the loss in stability are different in the cases of the action of only a longitudinal compressive force or the joint action of a longitudinal force and internal pressure. R. V. Gol'dshteyn.

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1/2    017                              UNCLASSIFIED              PROCESSING DATE--02OCT70
TITLE--REGENERATION OF AN ALUMINUM PLATINUM CATALYST INACTIVATED BY
   ALUMINUM SULFATE -U-
AUTHOR-(02)-KOZLOV, N.S., IVANKOVICH, E.F.

COUNTRY OF INFO--USSR

SOURCE--VESTSI AKAD. ANVUK BELARUS. SSR, SER. KHIM. NAVUK 1970, (1) 64-8

DATE PUBLISHED--------70


SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ALUMINUM SULFATE, PLATINUM, ALUMINUM OXIDE, HYDROGEN SULFIDE,
   CATALYST ACTIVITY, CATALYST REGENERATION, CATALYTIC DEHYDROGENATION


CONTROL  MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1967/1551              STEP NO--UR/0419/70/000/001/0054/0068

CIRC ACCESSION NO--AP0104509
                                        UNCLASSIFIED

2/2     017
CIRC ACCESSION NO--AP0104889
ABSTRACT/EXTRACT--(U) GP-0-     ABSTRACT.   THE REDN. FO AL SUB2(SL SUB4)SUB3
DEPOSITED ON GAMMA AL SUB2 O SUB3 BY H WAS STUDIED ON SAMPLES OF PURE
GAMMA AL SUB2 O SUB3 AND ON GAMMA AL SUB2 O SUB3 TREATED WITH AN AQ.
SOLN. OF H SUB2 PTCL SUB6 WITH 0.5 WT. PERCENT PT.    THE CONTENT OF AL
SUB2(SO SUB4) SUB3 CORRESPONDED TO 0.2-0.8 WT. PERCENT S.   THE EVOLUTION
OF H SUB2 S WAS OBSD. WITH PURE GAMMA AL SUB2 O SUB3 LARGER THAN OR
EQUAL TO 420DEGREES AND WITH PT PLUS GAMMA AL SUB2 O SUB3 SAMPLES LARGER
THAN OR EQUAL TO 300DEGREES.   THE ACTIVATION ENERGIES OF THE REDN. ON
GAMMA AL SUB2 O SUB3 OR ON PT PLUS GAMMA AL SUB2 O SUB3 WERE 31.9 OR 7.7
KCAL-MOLE, RESP.   THE REACTION RATE WAS GREATER ON PT PLUS GAMMA AL SUB2
O SUB3 SAMPLES.   MOST OF THE S WAS REMOVED DURING THE 1ST HR AND THEN
THE S CONTENT DECREASED SLOWLY.   THE CATALYTIC ACTIVITY OF THE RECOVERED
PT PLUS GAMMA AL SUB2 O SUB3 CATALYST WAS STUDIED DURING THE
DEHYDROGENATION OF C SUB6 H SUB12 AT 300DEGREES.   THE DEHYDROGENATION
DEGREE (ALPHA) WAS 85-91PERCENT FOR A S CONTENT SMALLER THAN OR EQUAL TO
0.1 WT. PERCENT.   WITH INCREASE IN THE S CONTENT GREATER THAN 0.1 WT.
PERCENT, ALPHA DECREASED.

TITLE--INFRARED SPECTROSCOPIC AND ELECTRICAL CONDUCTIVITY STUDIES ON THE
   FORMS OF FORMIC ACID, WATER, AND METHANOL ADSORPTION ON YTTRIUM OXIDE

AUTHOR-(03)-TOPCHIYEVA, K.V., LOGINOV, A.YU., IVANKOYSKIY, V.E.

COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL. 1970, 11(1), 193-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--FORMIC ACID, METHANOL, ADSORPTION, HYDROGEN BONDING, CHEMICAL
   DECOMPOSITION, YTTRIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0527          STEP NO--UR/0195/70/011/001/0193/0199

CIRC ACCESSION NO--AP0119446
                         UNCLASSIFIED

2/2     021

CIRC ACCESSION NO--AP0119446

ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.   TWO FORMS OF ADSORPTION WERE OBSD.
MOLS. OF THE ADSORBED COMPD. FORM H BONDS WITH THE SURFACE OF Y OXIDE
AND CAUSE A STRONGLY POS. CHARGE ON THE SURFACE.  THE LATTER OCCURS DUE
TO DONOR ACCEPTOR INTERACTIONS.  A DISSOCIATIVE FORM OF ADSORPTION TAKES
PLACE DUE TO BOND REDISTRIBUTION OF THE ADSORBED SPECIES.  HCO SUB2 H
DECOMP. ON Y OXIDE VIA THE DISSOCIATIVE FORM OF THE ADSORPTION, FORMING
Y FORMATES AS INTERMEDIATE REACTION PRODUCTS.       FACILITY:  KHIM.
FAK., MOSK, GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

TITLE--MULTICHARGED CA AND ZN ION SOURCE -U-

AUTHOR-(05)-PASYUK, A.S., VOROBYEV, YE.D., IVANNIKOV, R.I., KUZNETSOV,
   V.I., KUTNER, V.B.
COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. USSR, 28: 75-8, JAN 1970

DATE PUBLISHED-------70


SUBJECT AREAS--PHYSICS

TOPIC TAGS--ION SOURCE, ION BEAM, CALCIUM, ZINC, METAL VAPOR,
   CYCLOTRON/(U)U300 CYCLOTRON


CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/0213          STEP NO--UR/0089/70/028/000/0075/0078

CIRC ACCESSION NO--AP0105289
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0105289
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.   DESCRIPTIONS ARE GIVEN OF THE
DESIGN AND PERFORMANCE OF MULTICHARGED ION SOURCE.   THE SOURCE WAS USED
WITH CALCIUM AND ZINC METAL WITH THE VAPOR ELASTICITY REACHED AT ABOUT
800 TO 900DEGREFSC.   THE MULTICHARGED CALCIUM AND ZINC IONS WERE
OBTAINED WITH A SOURCE DEVELOPED FOR THE U-300 CYCLOTRON.   TABULATED
DATA INDICATE PULSED CURRENT VALUES FOR NINE CHARGED CALCIUM IONS AND
TEN CHARGED ZINC IONS.   IN SUCH A CASE THE MEAN ZINC CONSUMPTION IS
SIMILAR TO 50 MG,HR AND CALCIUM CONSUMPTION IS SIMILAR TO 100 MG,HR.
EXPERIMENTS ON ACCELERATION OF HEPTA CHARGED CALCIUM IONS AND DECA
CHARGED ZINC ION SHOWED A MEAN CURRENT FOR CA PRIME7 POSITIVE SUB40 IONS
ON THE 100 CM RADIUS REACHED 3 MU A AND AN EXTRACTED DECO CHARGED ZINC
BEAM UP TO CONGRUENT TO 10 NEGATIVE PRIME4 MU A.

UNCLASSIFIED

TITLE--MAGNETIC ANISOTROPY OF NICKEL COPPER FERRITE AND THE CONTRIBUTION
  OF NI PRIME2 POSITIVE IONS IN THE TETRAHEDRAL SUBLATTICE TO THIS

AUTHOR-(03)-MIRYASOV, N.Z., IVANNIKOV, V.L., KASHLINSKIY, A.I.

CCUNTRY OF INFO--USSR

SCURCE--FIZ. TVERD. TELA 1970, 12(4), 1256-9

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--MAGNETIC ANISOTROPY, FERRITE, NICKEL COMPOUND, COPPER
  COMPOUND, MAGNETIZATION, FERROMAGNETIC RESONANCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0374          STEP NO--UR/0181/70/012/004/1256/1259

CIRC ACCESSION NO--AP0126129
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0126129
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FROM MEASUREMENTS OF THE
  PARAMETERS OF FERROMAGNETIC RESONANCE, DETN. WAS MADE OF THE
  CONTRIBUTION TO THE ANISOTROPY CONST. OF NI PRIME2 POSITIVE IN THE
  TETRAHEDRAL SUBLATTICE. A SINGLE CRYSTAL WAS INVESTIGATED OF THE COMPN.
  NI SUBDOTIMES72 CU SUBDOTIMES1 FE SUB2TIMES18 O SUB4 AT 20-200DEGREES BY
  THE METHOD OF FERROMAGNETIC RESONANCE AT 9270 MHZ. SP. SATN.
  MAGNETIZATION, SIGMA SUBS, WAS MEASURED AT NEGATIVE 196 TO POSITIVE
  300DEGREES, WHICH ALLOWED ONE TO EXTRAPOLATE THE TEMP. DEPENDENCE TO
  ODEGREESK AND CALC. THE MAGNETIC MOMENT PER MOL. OF THE FERRITE. A
  CHARACTERISTIC PECULIARITY OF THE RESONANCE DATA IS THE PRESENCE OF 2
  SHARPLY SEPD. ABSORPTION LINES:  1 AT LOW FIELDS AND THE OTHER AT HIGH
  FIELDS WITH A DISTORTED SHAPE FROM THE SIDE OF STRONG FIELDS. THE 1ST
  LINE IS APPARENTLY RELATED TO RESONANCE DOMAIN BOUNDARIES. CATIONIC
  DISTRIBUTION AND THE ANISOTROPY CONSTS. WERE CALCD.          FACILITY:
  MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR                                              UDC 621.372.413(088.8)

KUGAYEVSKIY, A. F., YATSYNINA, N. L., KARIKH, N. M., IVANNIKOV, YU. A.

"Coaxial Resonator"

Translation: The proposed resonator is designed for measuring the electrical
parameters of materials. It consists of two sections connected to each other.
In order to improve the Q-factor of the resonator and increase the accuracy of
the measurements, one section of the resonator is fastened on a moving spring-
loaded carriage. The internal conductor of the resonator is equipped with a
tip which is supported on a threaded bushing of a bracket which is fastened
to the base of the carriage. There is one illustration.

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USSR

TIUNOV, L. A., KLIORIN, A. I., KOLOSOVA, T. S., IVANNIKOV, Yu. G., and
AKHMATOVA, M. A., Leningrad

"The Causes of Differences in Carbon Monoxide Concentration in Exhaled Air
in Man"

Abstract:  In man, carbon monoxide concentration in exhaled air normally varies
from 2.8 to 25 mg/m$^3$.  It increases with increasing erythrocyte concentration.
For example, when erythrocyte concentration is 4.71 million/mm$^3$, the average
CO concentration is 9.6 mg/m$^3$ of exhaled air, and when the RBC count is 5.34
million/mm$^3$, CO concentration is 22.9 mg/m$^3$.  On the other hand, the concentra-
tion of catalase in the erythrocytes decreases with increasing hemoglobin con-
centration in blood; and with decreasing catalase, hemoglobin catabolism
increases. The CO molecule is formed through incomplete oxidation of the
carbon atom in the alphamethylene bridge in the tetrapyrrole ring. Thus, CO
production is proportional to hemoglobin catabolism, and it increases in
hemolysis. Since 1.27 units of CO are produced for one equivalent unit of
hemoglobin catabolized, other hem-containing compounds, such as myoglobin and
1/2

USSR

TIUNOV, L. A., et al., Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov,
Vol 58, No 11, 1972, pp 1756-1759

cytochromes, also contribute certain amounts of CO. However, the ratio of CO
produced over hemoglobin catabolized is so constant that measurements of CO
concentration in exhaled air can be used as an indirect method of determining
erythrokinetics.

2/2

IVANNIKOV, Yu. G.

ACCURACY OF EXPRESS DIAGNOSIS OF INFLUENZA BY
THE FLUORESCENT ANTIBODY PROCEDURE (il -/asdiente)

Liu first reported in 1956 the application of the fluorescent antibody method to diagnose influenza in humans [6]. Since then much attention has been given to the study of that question.

In the present paper an attempt is made to make clear the accuracy of the immunofluorescent method of diagnosis of influenza in comparison with the possibilities of serological diagnosis.

Material and Methods

The methods of making preparations of fluorescent antibodies and the procedure of immunoluminescent analysis have already been described [1,2,4].

As was shown by Buck and Catt [5], the accuracy of a diagnostic method is composed of its sensitivity S₁ and its specificity S₂. Sensitivity is the probability of making a correct diagnosis in a patient, and specificity is the probability of rejection of disease in a healthy person or a patient with another disease.

A study of the accuracy of the serological method of influenza diagnosis has been made on a group of volunteers on an experimental clinical model of influenza. In that case only those inoculated volunteers who gave a distinct clinical reaction were taken into consideration [1].

The accuracy of the immunofluorescent method was evaluated in the diagnosis of diseases during an epidemic of influenza in parallel with the diagnosis of diseases during an epidemic of influenza in parallel with the diagnosis of diseases and serological methods. In that case the sensitivity S₁ and specificity S₂

- 1 -

[1 - USSR - C]

USSR                                              UDC 621.701:669.295:620.192.47

IVANNIKOVA, A. D., Candidate of Technical Sciences, FROLOV, V. V., Doctor of
Technical Sciences, and VERCHENKO, V. R., Candidate of Technical Sciences

"Pore Formation Attributed to Decarbonization of Pool in Welding of Titanium
Alloys"

Moscow, Svarochnoye Proizvodstvo, No 8, Aug 71, pp 59-61

Abstract:  The authors undertook to determine the effect of individual gases
and carbon on pore formation in the seams of titanium alloys by comparing
variations in experimentally determined hydrogen, oxygen, and carbon concentra-
tions of the pool metal with variations in the seam porosity as a result of
the differentiated addition of these elements to the base metal or the arc
zone.  VT1 sheet titanium and the $\alpha$-alloy OT4 were used for the experiments.
The gas content of the metal was determined by spectral analysis, the carbon
content by chemical analysis.  The equilibrium heterogeneous system Ti-C-O
was used to consider the pool decarbonization process.  It was found that the
porosity of welded seams increases on the burning-out of the carbon in the

1/2

USSR

IVANNIKOVA, A. D., et al., Svarochnoye Proizvodstvo, No 8, Aug 71, pp 59-61

pool. A calculation of the possibility of pore formation showed that the carbon monoxide forming in the welding pool can lead to the appearance of reaction pores. The experimental determination of the gas composition of the pores confirmed that they contain carbon monoxide.

2/2

IVANNIKOVA, A. G

UNCLASSIFIED

Name: Institute of Biophysics, Pushchino

Description:

(U) During this quarterly reporting period, 13 new articles were located from the Institute of Biophysics at Pushchino. On the basis of these articles, it was possible to associate 19 new persons with the Institute. These persons are listed below together with the subjects and dates of the articles:

| Basurmanov, G. K. | endocrine system | 1970(17) |
| Berentovskiy, G. N. | phospholipids | 1970(18) |
| Gaziyev, A. I. | DNA | 1970(19) |
| Ivannikova, A. G. | plant physiology | 1959(20) |
| Kiselev, Ye. Ye. | muscle physiology | 1970(21) |
| Kravchenko, N. A. | EPR spectra | 1970(22) |
| Narimanov, A. A. | radiation effects | 1970(23) |
| Panov, A. A. | endocrine system | 1970(17) |
| Pasoyun, V. G. | EPR spectra | 1970(22) |
| Porotikov, V. I. | muscle physiology | 1970(21) |
| Postnikova, G. B. | chromatography | 1970(24) |
| Rozhin, V. P. | phospholipids | 1970(18) |
| Revin, A. F. | radiation effects | 1970(23) |
| Sukhoruchkina, L. V. | chromatography | 1970(24) |
| Trincher, K. S. | plant physiology | 1969(20) |
| Vanllov, Yu. V. | radiation effects | 1970(23) |
| Zalkin, A. N. | hydrogen peroxide | 1970(25) |
| Zubrzhiyskaya, D. I. | DNA | 1970(19) |
| Zuzin, A. M. | DNA | 1970(19) |

USSR

GAVRILOVA, I. V., GEL'FMAN, M. I., IVANNIKOVA, N. V., KISELEVA, N. V.,
RAZUMOVSKIY, V. V., Leningrad Electrotechnical Communications Institute
imeni M. A. Bonch-Bruyevich

"Problem of the Trans-effect of Triphenylphosphite and Triphenylstibine"

Abstract:  The infrared spectra (500-200 $cm^{-1}$) of cation·complexes of platinum
trans-$[Pt(NH_3)_2LCl]NO_3$ (L = $Ph_3P$, $Ph_3Sb$) were measured.  The ionization
constants were found for the corresponding aquoins.  A study was made of the
thermodynamic stability of $[Pt(NH_3)_2(Ph_3P)Cl]^+$ and $(Pt(NH_3)_3Ph_3P]^{2+}$ in aqueous
solutions.  Both the $\sigma$-donor and $\pi$-acceptor capacity decrease in the order
$Ph_3 > Ph_3Sb$.  Both trends are exhibited to approximately the same degree for
each of the ligands.

The constants for the compared complexes were as follows:

$$Trans-[Pt(NH_3)_2(Ph_3P)H_2O]^{2+} \quad pK_a = 5.92; \quad trans-[Pt(NH_3)_2(Ph_3P)Cl]^+ pk_{Cl} = 3.65$$

$$[Pt(NH_3)_3H_2O]^{2+} pK_a = 5.50; \qquad [Pt(NH_3)_3Cl]^+ \quad pk_{Cl} = 3.60$$

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USSR

GAVRILOVA, I. V., et al., Zhurnal Neorganicheskoy Khimii, Vol XVIII, No 1, 1973, pp 194-199

A comparison of the thermodynamic characteristics with the spectroscopic characteristics shows that the frequency $\nu_{Pt-Cl}$ is primarily determined by the $\sigma$-donor properties of the ligand in the trans-position.

2/2

- 21 -

UNCLASSIFIED                 PROCESSING DATE--23OCT70

1/2     007
TITLE--REACTION OF THE PRODUCT OF RHODIUM CARBONYLATION BY
  DIMETHYLFORMAMIDE WITH 8 HYDROXYQUINOLINE AND 8 MERCAPTOQUINOLINE -U-
AUTHOR-(05)-VARSHAVSKIY, YU.S., KNYAZEVA, N.N., CHERKASOVA, T.G.,
  IVANNIKOVA, N.V., IONINA, T.I.
COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(3), 715-22

DATE PUBLISHED--------70


SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--RHODIUM COMPOUND, COMPLEX COMPOUND, CARBONYL RADICAL, FORMIC
  ACID, AMIDE, QUINOLINE, HYDROXYL RADICAL


CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1469         STEP NO--UR/0078/70/015/003/0715/0722

CIRC ACCESSION NO--AP0116906
                          UNCLASSIFIED

CIRC ACCESSION NO--AP0116906
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  BROWN VIOLET (RHL(CO) SUB2),
 BROWNISH (RHL PRIME (CO) SUB2), AND ORANGE (RHL PRIME H(L PRIME)), FORM
 IN HCONME SUB2 SOLNS. FO RHCL SUB3 WITH SALTS OF 8 HYDROXYQUINOLINE (LH)
 OR 8 MERCAPTOQUINOLINE (L PRIME H), RESP.  THEIR STRUCTURE IS ANALOGOUS
 TO THAT OF DICARBONYL COMPLEXES OF IR(I) AND RH(I) AND SCHIFF BASES.  L
 PRIME H EASILY REPLACES CO GROUPS IN THE INNER COORDINATION SPHERE:
 SOME (RH(L PRIME H)L) SEPD. EVEN AT 1:1 L PRIME H:RH RATIO.   THIS AND
 THE EASE OF THE REPLACEMENT OF CO GROUPS FROM (RHL PRIME (CO) SUB2) BY L
 POINT TO A STRONG TRANS EFFECT OF L PRIME LIGANDS.

UNCLASSIFIED

*f  45258x*  Reaction between di-μ-chloro-bis(dicarbonylirhodium)
and dimethylamine. Varshavskiĭ, Yu. S.; Ivannikova, N. V.;
Knyazeva, N. N.; Turkova, L. D. (USSR).  *Dokl. Akad. Nauk*
*SSSR* 1969, 186(3), 585-7 (Chem (Russ).  The reaction of [Rh-
(CO)$_2$Cl]$_2$ with Me$_2$NH was studied by ir spectroscopic, chem.,
and chromatographic methods.  The product of the reaction is a
tetracoordinated complex of Rh(I);  in contrast to compds.
formed by analogous reactions with NH$_3$ and primary amines,
this complex does not contain the carbonyl groups connected
with the metal through C.  One atom of Cl and 3 N-contg.
ligands are found in the coordination sphere of the complex.  At
least 1, but no more than 2, of these ligands contains the carbonyl
group which is coordinated through an atom of O.

C. J. Steinberg

*NH*

*1941*  **2181**

*1*

USSR

UDC 624.07:534.1

IVANOV, A. A.

"On the Problem of the Autonomic Oscillations of a Flexible Nonlinearly Elastic Grid"

V sb. Raschet prostranstv. sistem v stroit. mekh. (Calculation of Three-Dimensional Systems in Structural Mechanics -- Collection of Works), Saratov, Saratov University, 1972, pp 244-251 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V263)

Translation: Free oscillations of a homogeneous flexible grid made of non-linearly elastic material with any degree of sag and considering geometrical nonlinearity are discussed. Supports are assumed to be fixed and fastened at one level. Before stretching the grid has a constant linear density and is loaded uniformly along its entire length. The parameters of the elastic grid under equilibrium are obtained from statics equations by the iteration method. The system of equations describing the motion of the grid is solved by the small parameter method. A sample computer calculation of oscillations of the grid made of high-strength wire is given for the case of weakly and strongly sagging grids. It is shown that with an increase in the sag the

1/2

USSR

IVANOV, A. A., Raschet prostranstv. sistem v stroit. mekh., Saratov, Saratov University, 1972, pp 244-251

difference of the solutions in the first and second approximations increases, and the effect of stretching on the parameters of the elastic grid under equilibrium decreases.  T. D. Kudryavtseva.

2/2

- 26 -

UDC 534-8

USSR

MAKHKAMOV, S., SHARIPOV, Sh., IVANOV, A. A., DAVIDOVICH, L. A.,
KHALIULIN, M. G., KHABIBULLAYEV, P. K.

"Concerning the Acoustical Relaxation Mechanism in Certain Pure Fluids and
Their Solutions"

Uch. zap. Tashkent. gos. ped. in-t (Scientific Notes of Tashkent State
Pedagogical Institute), 1970, Vol. 90, pp 35-45 (from RZh-Fizika, No 10,
Oct 72, Abstract No 10Zh609)

Translation: The acoustical properties of the following low-viscous liquids
were investigated: carbon sulfide, carbon tetrachloride, chloroform,
methylene chloride, methylene boride, benzene, pyridine, thiophene, cyclo-
hexane, acetic acid and its solutions in pyridine. The amplitude coefficient
of the absorption was measured at frequencies from 285 kHz to 5 MHz by the
substitution method with an accuracy of 7-10% and in the range from 5 MHz
to 3 GHz          by the pulse method with an accuracy of 3-5% at low
frequencies and    7-10% at high frequencies. The speed of sound was mea-
sured by the phase method with an accuracy up to 0.1%. The results are
discussed from the aspect of vibrational and structural relaxation and their
mutual effect. V. Ye. Gordeyev.

1/1

Magnetohydrodynamics

USSR

IVANOV, A. A., KOZOROVITSKIY, L. L., RUSANOV, V. D., SAGDEYEV, R. Z., and
SOBOLENKO, D. N. .

"Experimental Observation of Electron Shock Waves in a Collisionless Plasma"

Moscow, Pis'ma v Zhurnal Eksperimental'nov i Teoreticheskoy Fiziki, Vol 14,
No 11, 5 Dec 71, pp 593-596

Abstract: Experimental proofs of the existence of a stationary heat discon-
tinuity (an electron shock wave) in a collisionless plasma are discussed and
its parameters are interpreted in accordance with the theory. The structure
of a thermal wave front that was obtained with an internal diamagnetic probe
introduced into the chamber in hydrogen and argon discharges is shown. The
initial plasma was produced by two high-frequency generators inside a glass
tube of diameter 8 cm and length ∿250 cm in a longitudinal homogeneous mag-
netic field of the order of 0.5-5 koe. The initial gas pressure varied in
the range $4-10 \cdot 10^{-4}$ torr and the charge particle concentration was $2 \cdot 10^{13}$
$cm^{-3}$, while the initial electron temperature was 10 ev. Local plasma heating
up to electron temperatures of ∿300 ev was achieved with a narrow coil that
generated a skew magnetosonic wave of large amplitude. The structure shows
that there exists a region of values where a wave nT of the shock type with

1/2

USSR

IVANOV, A. A., et al., Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, Vol 14, No 11, 5 Dec 71, pp 593-596

a fairly steep pressure drop is formed.  The velocity of this wave D depends
on the mass of the gas  ions and drops by approximately a factor of 2 upon
changing to a discharge in argon.  A similar wave structure was obtained
with measurements with a specially designed double electric probe.  Con-
trolled experiments made on plasma afterglow with an electron temperature
of $\sim 0.5$ ev showed that the length of the front and the wave velocity hold
constant--i.e., are independent of the initial temperature -- but that the
detailed structure of the front varies somewhat.  Analysis of the expression
for the velocity of the thermal wave shows that velocity should be a function
of the mass of the ions, $\sqrt{1/M}$.  Experiments with a xenon plasma showed that
the wave velocity also decreases in accordance with this relationship.  The
width of the thermal wave front is found by taking into account the fact
that the current velocity of cold electrons is dependent on the potential
produced by hot electrons.  A method for determining the density profile of
the hot electrons is indicated.  The authors claim that the analysis proves
that a stationary electron shock wave exists in a collisionless plasma and
note that such a shock wave can arise also in other situations, such as in
the effective attenuation of a relativistic high-current beam in a plasma.
2/2

USSR

PISARENKO, G. S., and IVANOV, A. A., Institute of Strength Problems, Academy
of Sciences, Ukrainian SSR

UDC 539.4

"Particularities in the Behavior of Soem Turbine-Blade Materials Under
Conditions of Asymmetrical Loading"

Abstract: The results of an investigation of the durability and vibration
creep of steel 1Kh17N2Sh and alloys EI617 with  high-frequency asymmetrical
loading are described. Steel 1Kh17N2Sh was tested under conditions of normal
temperature, while alloy EI617 was tested at normal temperatures and at
elevated (370, 470°) temperatures. It was shown that the limit characteristics
of low-frequency loading cycles of the material can be evaluated on the basis
of high-frequency test data. On the basis of the obtained experimental data
on fatigue and vibration creep, not only can results of practical importance
be obtained, but in addition, essentially new information on the strength
and deformation characteristics of the materials can become available. Four
figures, 4 references.

1/1

USSR

UDC:  539.388.1

TROYAN, I. A., IVANOV, A. A., Kiev

"Study of the Endurance and Vibration Creep of EI826 Alloy With High Frequency Loading"

Kiev, Problemy Prochnosti, No 11, 1970, pp 27-30

Abstract:  Studies of the endurance and vibration-creep of EI826 alloy were performed using a combination of static extension at up to 3000 kg with a variable component consisting of resonant longitudinal oscillations. It was determined that this asymmetrical, cyclical loading causes an accumulation of residual deformation (dynamic creep) superficially similar to ordinary (static) creep.  Dynamic creep is primarily developed by the variable component of the combined loading.  The effectiveness of the variable component increases with increasing mean stress.  The dynamic creep noted in specimens of EI826 was not great.  Dynamic creep curves reflect the process of accumulation of damage to the material during asymmetrical cyclical loading and therefore can be used as an additional means of studying the endurance of materials.

1/1

Instrumentation and Equipment

USSR                                        UDC 621.74.073:621.922.02:389.6

IVANOV, A. A., KOVALEV, S. N., MENDEL'SON, V. S., SELEKH, V. F.

"Specifications of Dies for a Diamond Abrasive Tool"

Moscow, Standarty i kachestvo, No 3, Mar 70, pp 7-9

Abstract:  This article presents a draft of standard specifications of dies for diamond abrasive tools (wheels) with organic and metallic bonds.  The specifications are divided into four groups: 1) the selection of materials; 2) the selection of basic dimensions; 3) assembly and accuracy; and 4) the finishing quality of dies. Two types of dies are considered: those designed for pressing operations at temperatures not exceeding 200°C and those designed for sintering with a metallic bond at 700-800°C.  Recommendations are given on steels and their heat treatment. The finishing of surfaces must meet the requirements of GOST 2789-59.  EI481 steel and EI437B refractory metal are finding wide acceptance for use in dies for diamond abrasive tools.

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1/2    012                    UNCLASSIFIED              PROCESSING DATE--18SEP70
TITLE--SPECIFICATION ON DIES FOR DIAMOND ABRASIVE TOOLS -U-

AUTHOR-(04)-IVANOV, A.A., KOVALEV, S.N., MENDELSON, V.S., SELEKH, V.F.

COUNTRY OF INFO--USSR

SOURCE--STANDARTY I KACHESTVO, 1970, NR 3, PP 7-9

DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--DIAMOND, ABRASIVE, BIBLIOGRAPHY, TECHNICAL STANDARD, ECONOMIC
  CONDITION, CUTTING TOOL, MACHINE TOOL COMPONENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/0868          STEP NO--UR/0422/70/000/003/0007/0009

CIRC ACCESSION NO--AP0102829
                            UNCLASSIFIED

2/2     012                        UNCLASSIFIED                PROCESSING DATE--18SEP70
CIRC ACCESSION NO--AP0102829
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  THE ARTICLE GIVES AN ACCOUNT OF
  THE SPECIFICATION ON THE DIES, THAT IS NOW PREPARED FOR THE FIRST TIME.
  THEIR ECONOMIC EFFICIENCY IS GROUNDED.

89

UNCLASSIFIED

USSR                                                          UDC 621.373:530.145.6

IVANOV, A. A., KULEV, V. A., POLKOVNIKOV, S. P.

"Calculating the Electric Field of a Six-Pole Capacitor with Variable Transverse Cross Section"

Translation: The intensity of the electric field in a sensor with a variable gap is calculated. The calculational results obtained permit calculation of the component intensities of the electric field and its modulus at any point of the selector. It is demonstrated that in the indicated selectors, a longitudinal component of the field intensity occurs. Nonuniformity of the field in the selector with a variable gap, which determines the effectiveness of sorting of the molecules, is greater than in selectors with a constant gap. On the basis of the electric field equations obtained, the equations of motion of the molecules in the selector can be compiled. The latter equations permit determination of the parameters of the molecular flux at the output of the selector.
1/1

1/2      024                              UNCLASSIFIED                    PROCESSING DATE--27NOV70
TITLE--RESONANT PARTICLES IN ELECTRON CYCLOTRON HEATING OF PLASMA -U-

AUTHOR-(03)-IVANOV, A.A., SPEKTOR, M.D., FRANKKAMENETSKIY, D.A.

COUNTRY OF INFO--USSR

SOURCE--JETP LETTERS (USA), VOL. 11, NO. 2, P. 136-8 (JAN. 1970)

DATE PUBLISHED-------70


SUBJECT AREAS--PHYSICS

TOPIC TAGS--PLASMA HEATING, CYCLOTRON, ELECTRON, HIGH ENERGY PARTICLE



CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/1084          STEP NO--US/0000/70/011/002/0136/0138

CIRC ACCESSION NO--AP0136504
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0136504
ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  A NUMBER OF INVESTIGATIONS OF
ELECTRON CYCLOTRON PLASMA HEATING HAVE REVEALED THE PRESENCE OF A GROUP
OF HIGH ENERGY ELECTRONS (SEVERAL TIMES 10 KEV), EXCEEDING BY MANY
ORDERS OF MAGNITUDE THE AVERAGE ENERGY OF THE PLASMA ELECTRONS.  THE
AUTHORS BELIEVE THE ORIGIN OF THE HOT ELECTRONS TO BE RESONANT
PARTICLES, WHOSE DOPPLER SHIFTED FREQUENCY COINCIDES WITH THE CYCLOTRON
FREQUENCY OMEGA OMEGA SUBC EQUALS K SUBZ V SUBZ.  THEY SHOW, USING THE
DISPERSION EQUATION FOR THE ELECTRON CYCLOTRON WAVES, THAT THIS
ASSUMPTION LEADS DIRECTLY TO A CORRECT ESTIMATE OF THE ENERGY OF THE HOT
ELECTRONS.

UNCLASSIFIED

1/2    022

TITLE--CONSTRUCTION MATERIAL KAPROLON V -U-                    UNCLASSIFIED                    PROCESSING DATE--13NOV70

AUTHOR-(02)-STEPANOV, G.P., IVANOV, A.A.

COUNTRY OF INFO--USSR

SOURCE--LAKOKRASOCH. MATER. IKH PRIMEN. 1970, (2), 75-6

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--POLYMERIZATION, CAPROLACTAM, CONSTRUCTION MATERIAL, ABRASION
   RESISTANCE/(U)KAPROLON V CAPROLACTAM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1072            STEP NO--UR/0303/70/000/002/0075/0076

CIRC ACCESSION NO--AP0134761
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0134761
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   PRODUCED BY THE LOW TEMP. POLYMN.
OF CAPROLACTAM IN THE PRESENCE OF ALKALIES AS THE CATALYSTS AND
ACETYLCAPROLACTAM AS THE ACTIVATOR, WAS USED AS A REPLACEMENT FOR BRONZE
OR CAST IRON PARTS IN CENTRIFUGAL AND GEAR PUMPS.   I CANNOT BE USED
ABOVE 70DEGREES BECAUSE IT SOFTENS, HOWEVER AT ROOM TEMP. IT RESISTS
BETTER THE ABRASIVE ACTION OF PIGMENT DISPERSIONS THAN METALS.   I CANNOT
BE USED FOR PUMPING 90PERCENT $H_2SO_4$ OR 4PERCENT $HNO_3$ SOLN.,
BUT IS RESISTANT TO ORG. SOLVENTS (XYLENES, BU ACETATE, LIGROIN, ETC.).

UNCLASSIFIED

1/2    044                          UNCLASSIFIED            PROCESSING DATE--23OCT70
TITLE--INTENSE RELATIVISTIC ELECTRON BEAM IN A PLASMA -U-

AUTHOR-(02)-IVANOV, A.A., RUDAKOV, L.I.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL EKSPERIMENTAL'NOY I TEORETICHESKOY FIZIKI, 1970, VOL 58,
   NR 4, PP 1332-1341
DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--RELATIVISTIC ELECTRON, ELECTRON BEAM, PLASMA INTERACTION,
   DENSE PLASMA, ELECTRON OPTICS, ELECTRON BEAM STABILITY, PLASMA PINCH

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1988/1492
                              STEP NO--UR/0056/70/058/004/1332/1341
CIRC ACCESSION NO--AP0106248
                              UNCLASSIFIED

ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  THE EQUILIBRIUM AND STABILITY OF
  AN INTENSE RELATIVISTIC ELECTRON BEAM INJECTED INTO A PLASMA IS
  CONSIDERED.  IN A DENSE PLASMA THE BEAM PRODUCES A BACK CURRENT WHICH
  COMPENSATES ITS FIELD.  OHMIC DISSIPATION OF THE BACK CURRENT LEADS TO
  THE APPEARANCE OF A MAGNETIC FIELD WHICH FOCUSES THE BEAM.  THE FOCUS
  LENGTH AND MINIMAL BEAM RADIUS ARE DETERMINED.  POSSIBLE EQUILIBRIUM
  STATES ARE DISCUSSED.  INSTABILITY OF THE BEAM WITH RESPECT TO LARGE
  SCALE SNAKE LIKE PERTURBATIONS WHICH ARE DANGEROUS FOR FOCUSSING (HOSE
  INSTABILITY) AND ALSO BEAM INSTABILITY WITH RESPECT TO LOCAL PINCHING
  ARE DISCUSSED.

UNCLASSIFIED

USSR

IVANOV, A. A., RUSANOV, V. D., and SAGDEYEV, R. Z.

"Electron Shock Waves in Collisionless Plasma"

Abstract:  High concentrations of hot electrons tend to dissipate and cold electrons flow inward to compensate the charge in a plasma, since the ions do not have sufficient time to move.  A stationary moving density jump of hot electrons can develop under conditions similar to those for a shock wave.  The motion of the cold electrons in the electrical field generated by the hot electrons is described as in the theory of anomalous resistance.

The slope, thickness, and velocity of the shock wave are calculated.  In general, the physical state of the front indicates the distribution function of the hot electrons.  Heat can propagate through a collisionless plasma with the formation of a steep-fronted shock wave.  A similar effect can occur when a plasma is heated by a strong relativistic beam.  Orig. art. has 3 refs.
1/1

USSR

UDC 681.325.3

IVANOV, A. A.

"Construction of Analog-Digital and Digital-Analog Converters with Controlled Coding Characteristics as Applicable to a Vocoder"

Tr. NII Radio [Works of the Scientific Research Institute for Radio], No. 2, 1970, pp 73-79 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No. 4, 1971, Abstract No. 4B553 by OR).

Translation:  The principles of construction of digital-analog and analog-digital converters with nonlinear conversion characteristics produced using logic elements are analyzed.  A logic nonlinear conversion system is designed.  It is noted that the use of these methods allows not only transition from linear code to linear code using one analog-digital and digital-analog converter  but also allows the functional dependence to be changed,  in accordance  with the specifics of coding of each channel with multichannel coding, or correction of coding characteristics to be performed.

1/1

USSR                                UDC: 669.721.472(088.8)

MARKOV, G. S., GRIGOR'YEVA, Ye. A., KOSAREV, S. P., MUZHZHAVLEV, K. D.,
ZUYEV, N. M., IVANOV, A. B.

"A Magnesium Electrolyzer"

USSR Author's Certificate Number 350863, Filed 28/12/70, Published 28/09/72
(Trnaslated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No
8G204P).

Translation:  The electrolyzer is equipped with chlorine-removing anodes and
diaphragms.  In order to reduce the losses of Mg and $Cl_2$ and improve their
separation, a diaphragm is placed horizontally between the anodes of the
electrolytic cells, separating the zone of collection of Mg from the zone of
collection of $Cl_2$.

1/1

KHRAMOV, V. P., IVANOV, A. B., and SEVOST"YANOV, V. P., Saratov Institute for the Mechanization of Rural Farming imeni M. I. Kalinina

"Physical Chemical Studies of Some Rare Earth Ethylenediaminediisoprophylphosphonates Having the Formula $KLnR \cdot nH_2O$"

Abstract: A study was made of salts having the general formula $KLnR \cdot nH_2O$ -- where $R = C_8H_{18}O_6N_2P_2$, n = 6 for Ce and Pr, 7 for Nd, and 8 for La and Sm -- using thermogravimetric, IR, and x-ray analyses. Diagrams are given for the former and the spectra for the latter two techniques. Partial dehydration reduced n to 3 for all 5 rare earth elements (REE). The thermolysis of the REE complexes occurred in two steps: the first from $55 - 180°C$, the second from $270 - 310°C$. The x-rays indicate that the obtained salts are rather more amorphous than $H_4R$. Analysis of vibrations in the infrared region shows that the metal coordinates with five atoms of oxygen from the phosphoryl group and three molecules of water. The potassium ion is bonded to six atoms of oxygen; also $H_4R$ has a higher coordination number (in this case, 6) than has been reported in the literature.
1/1

USSR

SOLYAKOV, S. P., BELKIN, G. I., TATAKIN, A. N., NACHAYEV, V. M., ZOBNIN, S, I.,
ZYEV, N. M., IVANOV, A. B., VUKOLOV, V. V., SVALOV, G. N., DEVYATKIN, V. N.,
ALEKSANDROV, V. A., GRIBOV, V. I.

"Method of Processing Slimes from Electrolytic Production of Magnesium"

Author's Certificate No 278126, filed 11/02/69, published 18/11/70. (Translated
from Referativnyy Zhurnal Metallurgiya, No 2, 1972, Abstract No 2G185).

Translation: In order to use the slime for production of Mg, it is fed from the
electrolyzers to chlorinators together with the depleted  $MgCl_2$ electrolyte
in the form of a pulp containing 1-10% MgO and 5-25% $MgCl_2$. The chlorinators
also receive the  Cl-Mg raw material and $Cl_2$, after which the electrolyte,
enriched with $MgCl_2$, is fed to the electrolyzers.

1/1

UDC 669.721.372

USSR

ZUYEV, N. M., IVANOV, ..., VLADLOV, V. V., SAZKOV, S. I.,
IRTEGOV, N. J., ..., ..., Ia. N., AGALAKOV, V. A.,
SHCHELKONOGOV, A. A., SABUROV, V. F., and KIRILENKO, I. S.

"Flow Line for Magnesium Production"

Moscow, Tsvetnyye Metally, No 9, Sep 71, pp 36-37

Abstract: An experimental-industrial flow line which uses smelted carnallite as the raw material for the production of magnesium has been established at a Soviet plant. The operation of the flow line is described by reference to a diagram and the distribution of slime (with 20% $H_2O$) by electrolyzers showing the maximum output of slime (up to 60% of its total amount) on the first 3-4 electrolyzers. It is shown that the centralized feeding of diaphragm-type electrolyzers provides a 3-4% increase of magnesium output. To maintain normal temperature conditions and compensate for heat losses, it is necessary to provide for an increase of current intensity and electrolyzer output by 10-12%, in comparison with electrolyzers with individual feeding. Two illustr., three biblio. refs.

1/1

UDC 669.721.472

USSR

ZUYEV, N. M., IVANOV, A. B., VUKOLOV, V. V., GENKIN, Ya. N., SHARUNOVA, G. M., SVALOV, G. N.

"Development of a Continuous Technology for Production of Magnesium"

Tr. Vses. N-i. i Proyektn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 72, pp. 48-55. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 G196 by the authors).

Translation: Results are presented from combined studies for the development of technology and equipment for production of Mg by electrolysis in a continuous system. This technology calls for a combination of the ordinary individually operating units into a single technological line with centralized charging of raw material, transmission of melt and Mg produced from unit to unit, and centralized removal of electrolysis products. The investigations established the influence of the continuous method of production of Mg on such technological indicators as the yield of Mg per unit current, the specific dc electric power consumption, the quantity of slime removed, etc; the specific features of operation of the equipment were determined. Testing of the technology and equipment for the continuous line was performed on laboratory, large-laboratory, and pilot-plant scales, demonstrating the possibility and promise of the new technological plan.

1/1

UDC 669.721.472(088.8)

USSR

REZNIKOV, I. L., ZUYEV, N. M., IVANOV, A. B., POLYAKOV, YU. A., FRANTAS'YEV, N. A., TATAKIN, A. N., SOLYAKOV, S. P., and KARAVAYNYY, A. I., All-Union Scientific Research and Design Institute of Aluminum, Magnesium, and Electrode Industry, Solikamskiy Magnesium Plant

"Method of Preparing Refined Electrolyte for Magnesium Production"

Translation: A method is proposed for preparing a refined electrolyte for magnesium production, which includes enrichment of a reversible electrolyte with chlormagnesium initial raw material and refining by means of electrolytic and heat treatment, and also with the help of reducing agents and gases. To increase the degree of refining of the electrolyte and improve the technological indicators, the reversible electrolyte is separated into several streams, one of which is fed to the beneficiation with chlor-magnesium raw material, and the remaining ones are added to the obtained chloride melt enriched with MgCl2 after refining. The enrichment of reversible electrolyte with chlormagnesium raw material produces 25-50% concentration of MgCl2 at melt temperatures of 450-650°. The concentration of MgCl2 in the refined electrolyte is maintained at 10-25%. 1/1

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Magnesium

UDC 669.721.472(088.8)

USSR

ZUYEV, N. M., KASHKAROV, A. Z., IVANOV, A. B., KOLESNIKOV, A. V., and
GOLUBEV, A. A.

"Method of Transporting Electrolytes for the Production of Magnesium

USSR Author's certificate No. 263894, Filed 21/10/68, Published 8/06/70,
(Translated from Referativnyy Zhurnal-Metallurgiya, No. 1, 1971, Abstract
No. 1 G170 P)

Translation: The method includes utilization of a pipeline and pump.
In order to avoid expending electric power to heat the pipelines by
using the heat of the exothermic reaction occurring upon mixing of the
circulating electrolyte with $MgCl_2$, the circulating electrolyte is fed

to a mixer for enrichment with magnesium chloride through a pipe
contained in a trough, while the electrolyte enriched with magnesium
chloride is returned from the mixer to the electrolyzers through the
trough.

1/1

UDC: 669.721.472(088.8)

USSR

ZUYEV, K. M., IVANOV, A. B., VUKOLOV, V. V., SHARUNOVA, G. M., SVALOV, G. N.,
IRTEGOV, N. N., SABUROV, T. F., SHCHELKONOGOV, A. A., GRIDOVSKIY, N. P.,
and KISELEV, A. V., All-Union Scientific Research and Design Institute of
Aluminum, Magnesium, and Electrode Industry, Bereznikovskiy Titanium-Magnesium
Combine

"Method of Cutting-Off the Electrolyte Supply of a Production Line Magnesium
Electrolytic Reduction Cell"

Translation: A method is proposed for switching-off the electrolyte supply
to a production line magnesium electrolytic reduction cell for subsequent
diffusion of scum by increasing the temperature of the electrolyte and the
concentration of magnesium chloride. To avert disruption of the operation
of the production line electrolytic reduction cell at the input into the
cathode cell of the electrolytic reduction cell, shields are placed, which
separate the working space of the electrolytic reduction cell from the elec-
trolyte flow in the distribution canal.

1/1

USSR

ZUYEV, N. M., VUKOLOV, V. V., and IVANOV, A. B.

"Selecting the Optimum Temperature for the Electrolysis of Magnesium Chloride"

Abstract: A review of earlier research indicates the lack of a concensus on the effect of temperature on current efficiency, points up the paucity of information on the effect of temperature on stuging, magnesium quality, and voltage, and demonstrates the need for a more accurate definition of relationships between the temperature of the electrolyte and technological characteristics. The current efficiency was checked as a function of temperature within 680-790°C. The experimental data on the performance of magnesium electrolyzers using a sodium-potassium electrolyte demonstrated that an increase in temperature favorably affects both current efficiency and power consumption only up to 710-720° C. A further increase in temperature
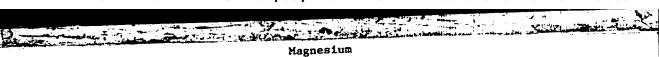
1/2

- 28 -

USSR

ZUYEV, N. M., et al, Tsvetnyye Metally, No. 12, Dec 70, pp 33-35

causes a marked drop in current efficiency and a rise in power consumption.
Heating the electrolyte to 720°C results in a significant increase in
sludging and lowers the quality of the produced magnesium. The contents
of Si, Mn, Cu, Ni, K, Ca, and Cl in crude magnesium are independent of
temperature and those for Mn, Cu, and Ni are determined by their contents
in the initial raw material. In feeding electrolyzers with magnesium
chloride of titanium production the content of these elements in magnesium
remains well below that specified by GOST.

2/2

Magnesium

UDC 669.721.472(088.8)

USSR

ZUYEV, N. M., IVANOV, A. B., VUKOLOV, V. V., SHARUNOVA, G. M., KASHKAROV, A. Z., DONSKIKH, P. A., KOLESNIKOV, A. V., GOLUBEV, A. A., SPRYGIN, A. I., KOLESNIKOV, V. A., and KUZ'MIN, V. V., All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry, and Berezniki Titanium-Magnesium Combine

"Device for Conveying Liquid Electrolyte and Magnesium"

USSR Authors' Certificate No 259396, Cl. 40c, 3/02; 40c, 3/08, (C 22d), filed 21 Oct 68, published 28 Apr 70 (from RZh-Metallurgiya, No 12, Dec 70, Abstract No 12 G250 P)

Translation:  In order to utilize the heat of the exothermic reactions taking place during the mixing of reversible electrolyte with MgCl$_2$ and to preclude the consumption of electric energy for heating the main conveyer lines, a pipeline for conveying the reversible electrolyte and metallic magnesium was installed inside a trough-shaped channel to convey a magnesium chloride-enriched electrolyte, the pipeline being connected at one end with the last electrolyzer of the flow line, and at the other with a mixer, while the trough-shaped channel is connected with the lead electrolyzer and the mixer.

1/1

USSR

UDC   621.3/4.:621.314.2(088.6)

IVANOV, A. B., ZAKHAROV, I. M., KUZNETSOV, V. I.

"A Ferrovariometer With Magnetic Control"

USSR Author's Certificate No 252418, Filed 9 Sep 67, Published
RZh-Radiotekhnika, No 10, Oct 70, Abstract No 10V370 P)

Translation:  The proposed ferrovariometer with magnetic control is based on an auto-
transformer with a ferrite core and contains an input control winding with magneti-
zation, and an output winding with variable inductance.  As a distinguishing feature
of the patent, the inductance control range is extended and core cooling is improved
by making the core of the ferrovariometer in the form of a set of rectangular ferrite
bars with longitudinal openings in which the above-mentioned output winding is located.
The output winding is made in the form of segments of hollow copper tubes which are
electrically interconnected on the end surfaces of the core.

1/1

IVANOV A.D.

AA0040759

3-90    UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent,

236175 TOOL,ELECTRODE comprises two identical steel plates of any shape made from hard cermet material which accounts for 25-40% of the volume of the electrode. When fixing the tool to the machine, the cermet plate is placed higher than the steel plate, in relation to the axis of rotation of the wheel being dressed. Current is supplied through the steel in the usual manner. 31.10.67. as 1194944/25-8. Pogodin-Alekseev, G.i et al. Special Design Office of Committee of Inventions and Discoveries of the Council of Ministers of the USSR. (12.6.69.) Bul.6/24.1.69. Class 48a. Int.C C23b.

19750447

AA0040759

AUTHORS:   Pogodin - Alekseyev, G. I.; Gavrilov, V. M.;
           Vasil'yev, V. G.; Kanevskiy, Yu. L.; Petrosyan,
           A. K.; Ivanov, A. D.

           Osoboye Konstruktorsko - Tekhnologicheskoye Byuro
           Komiteta po Delam Izobreteniy i Otkrytiy pri
           Sovete Ministrov SSSR

19750448

USSR                                UDC: 621.372.54

MOSTYAYEV, V. A., IVANOV, A. D., ABRAMOVICH, M. I., KUZIN, V. I., YAROSLAV-
SKIY, M. I.

"Low-Frequency Quartz Resonators With Vibrators Mounted by the Pressure
Welding Method With Indirect Pulse Heating"

Translation:  The authors consider parameters of low-frequency quartz reso-
nators with contour and bending vibrations in which the leads are fastened
to the piezoelectric elements by pressure welding with indirect pulse heating.
It is shown how these resonators have advantages over those in which the leads
are fastened to the piezoelectric elements by soft solder.  Authors' abstract.

1/1

USSR                                    UDC:  621.396.677(088.8)

TSALENCHUK, M. R., SAMARYANOVA, M. A., SHALIMOVA, G. F., BYKOVA, T. A.,
IVANOV, A. F.

"A Device for Monitoring the Working Order of High-Frequency Channels"

USSR Author's Certificate No 265983, filed 10 Jun 68, published 3 Jul 70
(from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1B103 P)

Translation:  The proposed device contains a two-terminal plug to which a
high-frequency oscillator is connected with DC power supplies.  To simplify
and speed up the monitoring process, the oscillator and power supplies are
enclosed in the housing of the plug holder.

1/1

TITLE--BOUNDARY VALUE PROBLEM FOR THE DIRICHLET CHARACTERS -U-

AUTHOR--IVANOV, A.F.

COUNTRY OF INFO--USSR

SOURCE--VESTNIK LENINGRADSKOGO UNIVERSITETA, NO 1, MATEMATIKA, MEKHANIKA,
ASTRONOMIYA, 1970, NR 1, PP 30-38

DATE PUBLISHED-------70

SUBJECT AREAS--MATHEMATICAL SCIENCES

TOPIC TAGS--BOUNDARY VALUE PROBLEM, DIRICHLET PROBLEM, ALGEBRA, FUNCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1984/0378        STEP NO--UR/0043/70/000/000/0030/0038

CIRC ACCESSION NO--AP0055163
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0055163

ABSTRACT/EXTRACT--(U) GP-0-  ABSTRACT.  THE PROBLEM THE PRESENT PAPER
  DEALT WITH HAS EMERGED FROM A MODERN METHOD IN THE THEORY OF EXPONENTIAL
  SUMS.    LET P SUB1, ..., P SUBS BE A SET OF PRIME DIVISORS OF SOME
  ALGEBRAIC FUNCTION FIELD K IN ONE VARIABLE OVER A FINITE FIELD (Q), Q
  EQUALS P PRIMEM, E SUB1, ..., E SUBS MINUS A SET OF COMPELX ROUTS OF THE
  UNITY, SO THAT E SUBI PRIMEN EQUALS 1 FOR SOME NATURAL N (I EQUALS 1,
  ..., S).    ONE ASKS FOR A DIRICHLET CHARACTER X FOR K, SUCH THAT X(P
  SUBI) EQUALS E SUBI.    IT IS PROVED IN THE PAPER THAT IN THE CASE OF N
  EQUALS P PRIMEALPHA N PRIME N PRIME PRIME, WHERE ALPHA EQUALS 1, 1, 2; N
  PRIME (Q MINUS 1: (N PRIME PRIME, P(Q MINUS 1)) EQUALS 1, N PRIME PRIME
  SQUARE FREE, THE REQUIRED CHARACTER EXISTS.    WITH THIS PROBLEM IN MIND
  AS WELL AS THE GENERAL ONE OF DESCRIBING EFFECTIVELY DIRICHLET
  CHARACTERS FOR A GIVEN FUNCTION FIELD THE FOLLOWING RESULT IS OBTAINED.

USSR

UDC  620.178:620.193:669.24'28'27

NIKANDROVA, YE. A. and IVANOV, A. G. (Deceased), Central Scientific Research Institute of Ferrous Metallurgy imeni I. P. Bardin (TsNIICHERMET)

"Hardness and Corrosion Resistance of Nickel Alloys With Molybdenum and Tungsten"

Abstract:  The present-day requirements on metals include minimum corrosion resistance (maximum losses for corrosion -- 0.2 mm/year) in solutions of hydrochloric and sulfuric acids and a minimum hardness of HRC 45.  The objective of this study lies in the area of development of metals designed to meet these requirements.  The experimental steels included N55M10V35, N70M15V15, N65M15V20, N55M15V30, N65M20V15, N60M20V20, and N55M20V25 alloys. The hardness and corrosion resistance of the alloys were tested versus various additions of tungsten and as a function of acids and aging temperatures (hold time 1 hr).  The newly developed hard and corrosion-resistant Ni-Mo-W alloys (N65M20V15 and N55M20V25) showed maximum losses of 0.2 mm/year in 30% HCl at 60°C and in 70% $H_2SO_4$ at 90°C and maximum hardness of HRC 52.

1/2

USSR

NIKANDROVA, YE. A., et al, Metallovedeniye i termicheskaya obrabotka metallov,
No 3, 1972, pp 24-27

The recommendations to facilitate production of age-hardened steels with high
hardness values include quenching in water from 1000-1050°C and subsequent
aging at 800°C for 4 hrs.  (4 illustrations, 2 tables, 6 bibliographic
references).

2/2

USSR                                                    UDC 621.643.001.5

BORISOV, P. P., SUROVOVA, V. N., IVANOV, A. G., DAVYDOVA, L. N., and
RUSSIYAN, A. V., VNIImontazhspetsstroy [All-Union Scientific Research Insti-
tute for Installation and Specialized Construction Operations]; ANUCHKIN,
M. P., VNIIST [All-Union Scientific Research Institute for the Construction
of Trunk Pipelines]

"Increasing the Breaking Strength of 17G1S Steel by Treating It With Synthetic
Slags"

Abstract:  The article describes results of a study at VNIImontazhspetsstroy
on the ability of specimens of 17G1S steel, refined in a ladle with synthetic
slag, to resist the propagation of static and dynamic bending cracks in the
stressed state.  For comparison, a study was also made of specimens of the
steel which had not been refined with synthetic slag.  It was found that
treatment of 17G1S steel with synthetic slag in a ladle increases the crack
initiation and propagation energy under all testing conditions and hence the

1/2

USSR

BORISOV, P. P., et al., Stroitel'stvo Truboprovodov, No 7, Jul 71, pp 26-28

total energy to fracture.  The treated steel is characterized by high resist-
ance to crack propagation in the stressed state at low temperatures.  The
operating reliability of gas pipelines can be increased by using treated
17G1S steel.

2/2

Biochemistry

SHVACHKIN, YU. P., VDOVINA, R. G.,  POZNYAK,  M. G., VOLUYSKAYA, YE. N.,
RYABTSEV, M. N., KRIVTSOV, V. F., GRACHEVA, A. K., KRASNOSHCHERKOV, S. P.,
NOVOSELOV, V. A., GRUZDEV, V. S., OLEYNIK, A. M., KALINKINA, Z. B., FEDOTOV,
V. P., IVANOV, A. I., YUDAYEV, N. A.

"New Synthesis of Human Insulin"

Abstract: Human insulin was synthesized on the basis of obtaining A and B
chains by the solid phase method $\underline{/}$ R. B. Merrifield, J. Am. Chem. Soc., No
85, 2149, 1963; J. Stuart, et al., Tverdofazny sintez peptidov, Moscow, Mir,
1971$\underline{/}$ and subsequently combining the synthetic chains into the complete mole-
cule of the biologically active hormone. Here, a new version of the synthesis
is realized which permits exclusion of treatment of the chains with sodium
in liquid ammonia which eliminates the danger of undesirable side reactions
caused by this reagent $\underline{/}$ A. Marglin, et al., J. Am. Chem. Soc., No 88, 5051,
1966$\underline{/}$. The A and B chains of human insulin were synthesized on an automated
device using a spherical chloromethylated copolymer of styrene with 1% divinyl
benzene as the insoluble carrier. All operations were performed in a nitrogen
atmosphere. The derivatives of the L-amino acids used in the synthesis of
the A and B chains are listed. The fluorohydrates of the chains were con-
1/2 ·

USSR

SHVACHKIN, YU. P., et al., Zhurnal Obshchey Khimii, Vol XLIII (CV), No 1,
1973, pp 216-217

verted into S-sulfonates which exhibited no differences from the S-sulfonates
of the corresponding natural chains of bull insulin.  The synthetic A and B
chains were recombined both with the corresponding natural chains and among
each other.  The resultant compounds had specific insulin activity of com-
parable magnitude to the previously synthesized insulin compounds
/ K. Lubke, et al., Adv. Enzymol., No 33, 445, 1970/.

2/2

- 4 -

USSR                                                                UDC 539.4

TRAKHTENBERG, B. F., IVANOV, A. I., DROBYAZKO, I. S.

"Study of the Post-Cycle Strength Characteristics of Tool Steel"

V sb. Dinamika, prochnost', kontrol' i upr. -- 70 (Dynamics, Strength, Monitoring
and Control -- 70--collection of works), Kuybyshev, 1972, pp 209-213 (from
RZh--Mekhanika, No 6, Jun 73, Abstract No 6V961)

Translation: A basis is provided for the necessity of studying the post-cyclic
strength of tool steel. The information about the post-cyclic strength is the
initial information for optimizing the heat refined conditions and selecting
the tool steel for specific operating conditions. In the example of investi-
gating 3Kh2V8F, 5Kh4SV4MF and 4Kh3VMF steel, the complex dependence of the
post-cyclic hot strength on the heat treatment conditions is demonstrated, and
the correlation is constructed for the hot post-cyclic ultimate strength as
a function of the life of the dies.

1/1

USSR

UDC 616.511-022.6

IVANOV, A. I.

Infektsionnyye Bolezni s Ekzantemami (Infectious Diseases With Exanthemas), Leningrad, "Meditsina,", 1970, 188 pp

Translation: Annotation: Clinical characteristics, diagnosis, and differential diagnosis of 20 of the most important acute infectious diseases accompanied by eruptions of the skin and mucosa are described in the monograph. Basic data concerning the etiology, epidemiology, and pathogenesis necessary for diagnosis and differential diagnosis are cited. Recommendations for treatment are provided. Considerable attention is given to the modifications in the clinical picture of infectious diseases which have taken place during the past few years as a result of the wide complex of prophylactic and therapeutic measures: vaccine and serum prophylaxis and administration of antibiotics, sulfanilamides, and chemotherapeutic and other drugs.

For the first time in the monograph literature, "Far-Eastern" scarlet-fever-like disease (pseudotuberculosis) and Rosenberg's infectious erythema are elucidated. The clinical characteristics of Rosenberg's infectious erythema are based on the results of the author's own observations.

Exanthemas and histomorphological changes in the rash are described, adhering to the methodological positions adopted at the Chair of Infectious

1/2

- 116 -

USSR

IVANOV, A. I., Infectious Diseases With Exanthemas, Leningrad, "Meditsina,"
1970, 188 pp

Diseases of the Military-Medical Academy imeni S. M. Kirov. Brief information
on skin anatomy and histology are given, contributing to a better concept of
the skin changes occurring in infectious diseases. This is followed a
description of the general characteristics of the eruption elements encountered
in infectious diseases, and specifications for recording the character of the
eruptions in the history of the disease. The description of the exanthemas
occurring in different infectious diseases is accompanied by 57 original
colored photo illustrations taken by the author of patients who received
treatment during the past six years.
    The book is intended for physicians-infectious disease specialists
therapists, pediatricians, and dermatologists.

2/2

USSR

UDC 616.1:359.6

BUKHALOVSKIY, I. N., Professor, Colonel, Medical Corps, and IVANOV, A. I.,
Doctor of Medical Sciences, Colonel, Medical Corps

"The Effects of Physical Exertion on Heart Electrical Activity of Submariners
During a Cruise"

Abstract: EKG studies were conducted on submariners undergoing physical exer-
cises during a cruise. The changes observed on the EKG 3 min after the exercise
were within the normal range; the P-Q interval was somewhat shortened, the
systole was insignificantly prolonged, the amplitude of the P wave was slightly
increased in the chest leads, the amplitude of the T wave was slightly
increased in the second standard lead and the precordial leads, and the S wave
was somewhat increased on the left precordial leads. The S-T segment remained
on the isoelectric line. Data were also obtained which indicated that atrial
and ventricular conductivity was slowed. The findings indicate that physical
exercise, adjusted to the individual, is important to the physiological well-
being of submariners.

1/1

EQUIPMENT
Aeronautical

USSR                                    UDC 629.7.036.3:531.7

GUSEV, Yu. M., IVANOV, A. I., SHAYMARDANOV, F. A.

"Synchronized Device for Converting the Rotating Speed of a Gas Turbine to
Pulse-width Modulated Signals"

Translation:  Recently, electrical gas turbine speed measuring and regulating
devices have become common.  In these devices, the signal from the turbine
speed sensor is sent to the control system as a periodic voltage curve of
some shape with a frequency proportional to the rotating speed of the engine.
The  necessity frequently arises of converting the frequency of the rotating
speed sensor signal to a proportional dc voltage.  The best device for this
purpose is a frequency to voltage converter with double conversion from fre-
quency to duty cycle to voltage, one stage of which consists of formation of
pulse-width modulated signals with a duty factor proportional to the frequency

$$S = \tau/T,$$

1/2

USSR

GUSEV, Yu. K., et al., Tr. Ufim. Aviats. In-ta, 1971, No 18, pp 3-14

where $\tau$ is the time interval of the pulse-width modulated signal; T is the
period of the frequency being converted. This work presents a comparative
analysis of several possible means of formation of the duty factor of the
signal.  4 figs; 7 biblio refs.

2/2

USSR

UDC 621.438-531.6.001.5

IVANOV, A. I.

"Study of Design Principles of an Adaptive, Optimal With Respect
to High Speed Operation, Speed Governor of Gas Turbine Engine"

"Avtomat. upr. i regulirovaniye" (Automatic Control and Regulation)
Kuybyshev, 1971, pp 183-186 (from Referativnyy Zhurnal-Turbost-
royeniye, No 10, Oct 71, Abstract 10.49.156)

Abstract: It was determined that optimal, with respect to high
speed, control of gas turbine engine operation, with essentially
nonlinear and unsteady characteristics, can be designed, under the
assumption of quasi stationary state and quasi linearity of the
object during short time intervals, and on the basis of using
current values of object parameters, which are determined with
the aid of an identification system. For objects having small
nonlinearity of characteristics and working within a narrow range
of external conditions variation, a quasioptimal control can be
obtained based, either on the use of the average, most probable
values of object parameters, or on the use of forced sliping regimes.
1/1

USSR                                                          UDC 669.71.48

MILLER, V. YA., IVANOV, A. I., UTKOV, V. A.

"Agglomeration of Finely Dispersed Moist Clay Material"

Translation: Agglomeration of red sludge is possible if its moisture content is less than 26%. Drying (to 14-17% moisture) can be realized by hot return. During agglomeration the red sludge is close to iron hydroxide ores (fine limonite, brown chromite, and ocherous ores). The agglomerates are distinguished by high reducibility, sufficient strength, and resistance to deterioration with a 35-40% content of return and 5-6% coke. There are 4 tables and an 8-entry bibliography.

1/1

USSR                                      UDC: 621.382.001.5

SHENCHULSHINA, Ye. A., FIGUROVSKIY, Ye. N., IVANOV, A. I.,
INOZEMTSEV, K. I., and KIREYEV, P. S.

"Characteristics of p-n Junctions in PbTe"

Moscow, Radiotekhnika i Elektronika, Vol. 15, No. 3, 1970, pp 546-
550

Abstract: Although lead telluride has some interesting proper-
ties, its p-n junctions have not been given enough attention.
This article considers the problems in the way of obtaining PbTe
monocrystals, the manufacture of the p-n junction, and the in-
vestigation of some of their characteristics. PbTe is made from
99.999% pure lead and tellurium, by weight, by the temperature
gradient method. The oven in which the compound is synthesized,
and its temperature distribution with height are shown in a dia-
gram. The synthesis was made in an atmosphere of spectral argon,
and the operating temperature in the synthesis zone and crystal

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USSR

ZHEMCHUZHINA, YE. A., et al, Radiotekhnika i Elektronika, Vol 15, No 3, 1970, pp 546-550

Abstract:

growth zone was maintained with an accuracy of $\pm 0.5\%$ C. The electron-hole junctions were made by three methods: diffusion of the lead; vaporization of the tellurium; diffusion of indium in the PbTe. Details of each of these methods are given. The volt-ampere characteristics for various diodes, plotted on semi-logarithmic coordinates, are also given. It is stated that the junctions can be used for infrared radiation sensors, lasers with a tunable radiation spectrum under pressure, and similar devices.

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TITLE--AGE OF GOLD MINERALIZATION IN THE AKVEIT DEPOSIT NORTHERN
    KAZAKHSTAN -U-

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.  THE HYDROTHERMALLY ALTERED ROCKS,
  RELATED DIRECTLY TO MINERALIZATION, WERE USED IN DETN. OF ABS. AGE OF AU
  MINERALIZATION IN THE DEPOSIT.  THE NEAR ORE ALTERED ROCKS HAVE A ZONAL
  STRUCTURE.  EACH ZONE REPRESENTED A DEFINITE DEGREE OF REPLACEMENT OF
  WALL ROCKS  THE INTENSITY OF WHICH INCREASED FROM UNALTERED ROCKS IN
  DIRECTION TO FRACTURES WHICH PROVIDED FOR CIRCULATION OF HYDROTHERMAL
  SOLNS.  THE ROCKS FROM THE ZONE OF BERESITIZED ROCKS (0.1-0.5 M),
  DEVELOPED AFTER DIORITE AND SYENITE PORPHYRY, WAS USED FOR DETN. OF THE
  AGE BECAUSE IT CONTACTS DIRECTLY THE ORE BODY.  THE ZONE CONSISTED OF
  SERICITE 60-80, QUARTZITE 5-15, CALCITE 0-10, PYRITE 0-5PERCENT, AND FEW
  GRAINS OF ALBITE, RUTILE, LEUCOXENE, AND APATITE.  THE SERICITES WERE
  SELECTED FOR DETN. OF ABS. AGE BECAUSE THEY WERE NOT SUBJECTED TO
  SUPERGENE ALTERATIONS (HYDRATION, DEHYDRATION, AND LOW TEMP. NA
  METASOMATISM) WHICH OCCURRED IN THE DEPOSIT AND AFFECTED THE K-AR RATIO
  IN MICAS.  THE K-AR DATING OF SERICITES INDICATED THAT ORE BODIES IN THE
  AKVEIT DEPOSIT WERE FORMED 406-414 MILLION YR AGO.

UNCLASSIFIED